

# DANISH NATURALISTS IN THAILAND 1900-1960

by

*Anton F. Bruun, The University of Copenhagen*

## Introduction

The study of animals and plants has a long tradition in Denmark; especially the last two centuries, since Linnaeus' time, has resulted in a fairly detailed knowledge of the Danish fauna and flora. As in most temperate regions of the world the limited number of species made the taxonomic studies reasonably easy, so that attention could be given to the life-history of the species and their physiology, ecology and other biological aspects.

But for a fuller understanding of any result in these fields a comparison with conditions in other parts of the world is a very fruitful approach. The arctic environment is easily covered, since Greenland is a part of Denmark, but for the tropics Danish scientists had to look for other countries, and this led to the long tradition of collaboration between Thailand and Denmark in the study of the flora and fauna of Thailand.

## The Danish Expedition to Siam 1899-1900.

In 1874 a young officer of the Royal Danish Navy, Andreas du Plessis de Richelieu, became a member of the Royal Thai Navy, which he obviously served well so that he could visit Denmark in 1898 as an admiral. Here he met a 21 year old botanist, Ernst Johannes Schmidt (1877-1933) who had just finished his university training in Copenhagen. Schmidt was eager to get out to study the tropical plant life and Richelieu suggested the island Koh Chang in the Gulf of Thailand to be a suitable locality. Schmidt had no difficulties in getting a young zoologist to join into his plan; this was Ole Theodor Mortensen (1868-1952).

These two got the founder of the East Asiatic Company, Ltd. (1897), Hans Niels Andersen (1852-1937) interested and

obtained free passage to Bangkok and back again. The further money needed was provided by the Danish Government and the Carlsberg Foundation.

So the two scientists arrived in Bangkok on the 12th December 1899 and in Mortensen's own words: "We were kindly received by the Siamese Government, and having got a letter of introduction to the Governor of Muang Krat, we left Bangkok on the 19th of Dec. on H. Siamese M.S. "Chamroen" for the little island of Koh Chang in the eastern part of the Gulf of Siam. We had chosen this place with the consent of the Admiral; here was a Government Station, where we could stay, and soldiers to assist us with the dredgings etc., and, last not least: This small place we might hope to study rather completely in the short time (about 3 months), we could stay."

And so they did; but all around Koh Chang the bottom was muddy with little variety of animals, so it was very essential that Mortensen could have a rather large boat from the Navy and explore the surroundings of Koh Kahdat, Koh Chuen, Koh Mesan and Koh Kram. Several times the Admiral allowed Mortensen to go dredging with the H.S.M.S. Chamroen and thus investigate the fauna of a large part of the east side of the Gulf, from Koh Cong to Koh Si Chang; and down to depths of about 50 metres. In this way he got rich collections of fishes, crustaceans, molluscs, sponges, and many more groups, especially from breaking coral-blocks to pieces; here would be polychaete worms, brittle-stars, and many boring animals.

Schmidt was all the time working on the island, collecting plants, but they met in the study of the Mangroves with the very special type of plant and animal life.

Schmidt took a special interest in the giants of the forest, the Dipterocarpacea and found several new species. It is no easy matter to get the flowers from the crowns of these tall trees; but a well-aimed gun rendered good assistance, also in getting orchids, ferns and other epiphytes.





Jungle at Koh Chang Island. Picture taken by Dr. Johs. Schmidt, 1900.





On the 21st March 1900 they left Koh Chang, but it took two months before they reached Copenhagen and could start the no less important task of getting the collections studied in details and published. In some way the publication of the scientific results of any expedition is even the most important but also the most difficult task. It is of very limited interest to have rich collections stored away in museums; only when the studies are published the results are available to fellow-scientists.

But here both Schmidt and Mortensen had quite a lucky hand. In the following ten years five beautiful monographs on marine and terrestrial animals were published; Mortensen himself treated the sea-urchins (Echinoidea), and others examined the bivalves, opisthobranchiate gastropods and the crabs, all important groups of the marine fauna of the Gulf. Another big paper was about the very interesting terrestrial pseudo-scorpions. All were published in English in the *Mémoires de l'Académie Royale des Sciences et des Lettres de Danemark*.

Schmidt's most important study was "Contributions to the knowledge of the shoots of the Mangrove trees of the Old World". This was accepted by the Copenhagen University as his Doctor's thesis, and therefore published in Danish (1903). But he also edited the "Flora of Koh Chang", of which the last part was published in 1916, as all parts, in the *Botanisk Arkiv*, Copenhagen. Schmidt himself wrote Part I, Introductory, Part IV, Peridinales, Part VII, Combretacea, and Part X, Concluding Remarks, Index to Families, Genera and New Species. Besides he published "Some Tintinnodea from the Gulf of Siam" and not least the magnificent illustrations "Vegetationstypen von der Insel Koh Chang im Meerbusen von Siam" in *Karsten und Schenck: Vegetationsbilder, Dritte Reihe, Heft 7-8*, Jena 1906.

Keeping in mind that all these publications remain as the results of two young scientists with no former experience in the tropics, it must be called a remarkable achievement. But furthermore their papers will not alone stand up as valuable contributions to the knowledge of the fauna and flora of Thailand; as

it is, most animals and plants, especially the marine species, have often a very wide distribution. Therefore all the publications of this expedition are consulted by any student of the nature of the tropical south-east Asia.

But to the two young naturalists this expedition became an initiation never to be forgotten; both of them became world-travellers for the rest of their life. Mortensen never saw Thailand again, but in 1914 he was in the Philippines, in 1922 in the Kei-Islands and Ambon of eastern Indonesia and in 1929 in the Java Sea, at the same time attending the Pacific Science Congress; here he urged that an International Marine Biological Station should be erected in the region, more rich in species of animals than any other part of the world. — Schmidt turned his interests from botany to marine zoology, as will be mentioned in the following.

### Koh Chang revisited.

By 1929 Johannes Schmidt had become a student of the ocean, a world-known oceanologist because of his search for the breeding places of the European Eel (*Anguilla anguilla*), which he found in the subtropical North Atlantic, in the Sargasso Sea.

With a small steamer, the Dana, only 360 tons, he had started a deep-sea expedition around the world in June 1928. After having crossed the North Atlantic and the Pacific the expedition visited Saigon which it left on the 18th April 1929, and the next port of call was Bangkok. Passing Pulo Obi it headed northwards in the Gulf of Thailand and spent four days with investigations. In view of the experience from the deep-sea, the shallow water of the Gulf was an easy object for a series of hydrographical and planktonic observations. The Gulf is a part of the very large shelf-area which lies as a huge barrier between the Indian and Pacific Oceans, a serious hindrance for the free exchange of the water masses and their organisms between the two oceans. Now it was interesting to see how far the deep-sea animals of the South China Sea could penetrate into the shelf





A party from the Dana visiting Koh Chang in 1929. From the left : Nai Sug, a local man, who knew Johs. Schmidt since 1899; Georg Hansen, commander of the Dana; Johannes Schmidt, leader of the Dana Expedition. In the background to the right: Anton F. Bruun, zoologist and Luang Choola. Sitting in the foreground to the right: Poul Jespersen, zoologist and E. Steemann Nielsen, botanist. Four additional persons are crew members of the Dana.





area, and again it was seen—as observed earlier on the cruise—how even surface-living animals are confined either to the deep-sea or to the shelf with depths of less than about 200 metres.

After a week's visit to Bangkok, a memory never to be forgotten by the members of the expedition, and during which Johannes Schmidt addressed the Siam Society about his research, another week was spent with research in the Gulf, before leaving for Nha-Trang.

And so it happened that the author of this article went ashore on Koh Chang together with Johannes Schmidt and some members of the expedition which now included Luang Choola from the Department of Fisheries. This visit, on the 8th May 1929, was not meant for collecting new material, but rather to remind a new generation of Danish naturalists of the tradition, started by Mortensen and Schmidt 30 years before.

The results obtained are included in the Dana Reports, published by the Carlsberg Foundation, which also sponsored the two years' world-cruise. So far 9 big volumes and many more small papers have been printed, but several more are in preparation; many of the results elucidate the distinction between oceanic and shallow water plankton organisms, which is of such great importance in the relation between the deep South China Sea and the Gulf of Thailand.

### **Twenty-two years later.**

Two of the members of the Dana Expedition 1928–30 tried to follow up Schmidt's and Mortensen's work in the oceans. In 1950 they had got another world-wide deep-sea expedition started, a task sponsored jointly by the Danish Government and the Danish Expeditions' Fund. This time it was the frigate *Galathea* of the Royal Danish Navy, a ship of 1600 tons with about 20 scientists onboard. The two Dana people were the commander of the ship, Captain Sv. Greve, R.D.N., and the scientific leader of the expedition, the present author. So it was quite natural that the Gulf of Thailand and a visit to Bangkok was included in the planned

route. This time the ship came from Singapore and spent a week on the trip arriving in Bangkok on 12th June 1951, leaving 6 days later, and then spending another 4 days on the way back to Singapore. Again the scientific purpose was a comparison between the deep-sea and a tropical shelf-area; but this time it was a study of the density of bottom-living animals in relation to the production of primary food, namely the plankton algae, in the overlying water masses. This production can be expressed in grams of Carbon, assimilated by the plants per day per square metre of surface.

The figures from three stations in the Gulf were very high, from 0.49 g in the south to 1.08 g in the northernmost part; this is to be compared with figures of 0.08 g to 0.15 g in the South China Sea and the Pacific, close east of the Philippines. Such figures are of great interest because they tell us about the potential productivity of the seas, more especially about the fisheries.

The scientific results of this expedition are published by The Danish State Research Foundation as the *Galathea Reports* of which 3 volumes have been published, besides numerous other papers. Several more are in preparation.

As on the Dana Expedition the *Galathea* left Bangkok with a young Thai onboard, Mr. Swarng Charernphol, from the Fisheries Department, to study the technique of the research. But no less important was the direct contact created between the staffs of all the Thai institutions interested in the marine sciences and that of the expedition.

### **The Thai-Danish Botanical Studies.**

When I visited Thailand for the first time in 1929 as a member of the Dana Expedition I also met two Danes who in various ways gave me an introduction to the nature and people of Thailand, never to be forgotten.

First I may mention Mr. C.J. Aagaard, who lived in Bangkok from 1910 to 1933; he was a keen observer of animals, especially



birds, and kept a record of all birds he had observed in Bangkok, ending up with the high number of 220 species. In 1930 he published the well-known book: *The Common Birds of Bangkok*, which had to include no less than 110 species to cover the title. To anybody even with the slightest interest in the magnificent bird life teaming in the gardens, the klongs and along the Chao Phya, this book is a very useful first guide.

The other Dane was Major Erik Seidenfaden of the Royal Siamese Provincial Gendarmerie, who lived in Thailand from 1906 to 1947. His deep knowledge and love of the Thai peoples, their culture, history and languages, made a profound impression on me. His activity falls outside the frame of this article, still, his close connection with the Siam Society, of which he was a Past President and Honorary Member, has an important bearing on the present chapter.

His nephew, Gunnar Seidenfaden, then a student of botany at the University of Copenhagen, visited him in 1934-1935. Later on, in 1955, when he became His Danish Majesty's Ambassador to the Siamese Court he took up the tradition of his uncle and became soon an active member of the Council of the Siam Society. But furthermore he took up a comprehensive study of all the native orchids, aiming at a monograph to be published in collaboration with his very competent Thai fellow-botanist, Forest Officer Tem Smitinand.

But not satisfied with his orchids he widened the field by planning the Thai-Danish Botanical Studies, a real joint operation between scientists of the two countries. I may here only mention the Danish sponsors, of which the most important was the Danish Expeditions' Fund; ever since its foundation in 1945 this Fund has received much support from the East Asiatic Co. Ltd. and Danes living in Bangkok.

This expedition started in January 1957 when the two Danish botanists, Professor Kai Gram of the Royal Danish Agricultural College and Dr. C. Syrach Larsen, Director of the Royal Danish Arboretum, arrived in Bangkok. In company with H.E.

Gunnar Seidenfaden, the Royal Danish Ambassador, they travelled for three months in many parts of Thailand with the purpose of pointing out the region for an intensive study and of collecting botanical specimens and photos for the guidance of the scientists to follow on.

In January 1958 this was followed up by Professor Thorvald Sørensen, D.Sc. of the University of Copenhagen, assisted by Kai Larsen, M. Sc. Again Ambassador Seidenfaden joined the party, this time together with Forest Officer Tem Smitinand. Besides studying in some detail the plant-geography of Thailand they selected the mountain Doi Sutep near Chiangmai as the center for a close study of the ecology of the monsoon-forest, to last for a year.

By the end of March two more Danish scientists arrived, the botanist Bertel Hansen, M. Sc. and his wife, the zoologist Birgit Degerbøl Hansen, M.Sc., the East Asiatic Co. Ltd. having offered free passage true to the tradition of support to scientific activity. While Professor Sørensen had to return to Denmark the two newcomers went to Chiangmai together with Mr. Larsen.

With local assistance a suitable house was built to serve as the head-quarters of the expedition, near the Doi Sutep Forest Station.

The programme for the coming year was to aim at a thorough description of the Doi Sutep forest types. With intervals, preferably once a month, the types were examined from the foot to the top of the mountain. For documentation as much material as possible was collected for a herbarium. Many plants were also preserved in special fluids for later studies of chromosomes.

Closely co-ordinated to this the zoological work was concentrated on a description of the fauna of the forest floor, and likewise a very great collection of animals was preserved. Special attention was paid to the arthropods, mostly the larger types of millipeds, scorpions, cockroaches, termites, etc.

Samples of soil were collected for an evaluation of the variation of conditions of the soil in relation to the season of the





The house which served as head-quarters and laboratory for the Thai-Danish Botanical Studies in Doi Sutep, near Chiangmai, 1958-1959.





year and its localization on the mountain. Furthermore measurements of temperature and humidity as well as the intensity of light were made.

Now and again excursions were made to other parts of the country, often under the leadership of Mr. Tem Smitinand.

In support of the studies of orchids, carried out by Ambassador Seidenfaden, live specimens from many localities were sent to Bangkok for immediate examination. From October 1958 the Ambassador had as a scientific draftsman Mr. Franz Floto, B. Sc., from Copenhagen. Mr. Floto took part in several of the excursions of the expedition and also made some single-handed journeys making observations in line with the general programme.

Mr. Kai Larsen returned to Denmark, while Mrs. Birgit Hansen and Mr. Bertel Hansen carried on the studies until the end of March 1959 to make them cover a full year.

Ending up the expedition the Danish Forest Officer, Mr. Henrik Keiding carried out studies and experiments with selective breeding and improvement of the Teak during the months of March to June 1959.

This was followed up by Mr. Sa-Rad, Lecturer of Silviculture of the Chulalongkorn University, who was invited to Denmark, and studied these methods from April to August 1960.

Naturally the results of this expedition have not—and could not have—been published so far, but the great material of collections and observations are under treatment and will in due course prove to be of great scientific value and eventually of no less importance for the considerations on the future forestry, especially of Teak, in Thailand.

### Epilogue.

This short review of the Thai-Danish collaboration in the sciences since the dawn of this century has seen a special increase these last ten years, and is now facing a very promising extension: The Thai-Danish Prehistoric Expedition. This is sponsored

by the Siam Society and The Danish Expeditionary Fund, and Thai and Danish scientists will here enter a closer collaboration than ever before.

It has been my good fortune to visit Thailand more often than any other Danish scientist, partly as a member of Danish expeditions, but also in connection with UNESCO, the Pacific Science Congress in Bangkok, the Indo-Pacific Fisheries Council and lately the Naga-Expedition.

To me, a zoologist, from a temperate country, it has meant an invaluable experience about life and living conditions in the tropics, giving me a broader understanding of my studies, and so I know it has been with all my countrymen. We are all grateful to Thailand for the opportunities so graciously offered, and I wish cordially to acknowledge this.

But no less we—and I perhaps more than anybody—owe a great debt of gratitude for the human experience it has been to meet Thai fellow-scientists and scholars, many of these acquaintances growing into long-lasting friendships. I would like to concentrate this vote of thanks to too many people to list in one person, His Highness Prince Dhaninivat, Kromamun Bidyalabh, President of the Siam Society.